

NEW SPECIES FROM THE MALAY PENINSULA.

BALSAMINACEÆ.

Impatiens tipusensis, *Henderson, sp. nov.*

Herba reptans succulenta, glabra, caule basi ramoso, ramulis carnosus. Folia alterna, exsiccata membranacea, glabra, triangulo-ovata, acuta, crenata setulis interjectis, basi truncata vel leviter cordata, ad 8 cm. longa, 6 cm. lata, nervis utrinque circa 6, gracillimis, petiolis carnosus ad 9 cm. longis, apice biglandulosus. Pedicelli solitarii, 5.5 cm. longi, bracteati. Sepala 4: 2 exteriora ovata-rotundata, 1.2 cm. longa, 1 cm. lata; 2 interiora oblonga, 4 mm. longa, circa 1 mm. lata. Vexillum oblongum, apice bilobum, circa 2.3 cm. longum. Alae stipitatae, 3.5–4 cm. longae; lobus distalis triangulo-acutus, falcatus, geniculatus; lobus basalis similis, brevior. Labelli limbus late infundibuliformis, 4.2 cm. longus, ore 2 cm. diam., mucronato; calcar 1 cm. longum, incurvum. Filamentia linearia, circa 5 mm. longa. Antherae in capitulum oblongum circa 3 mm. longum connate. Ovarium fusiforme, acutum, 3 mm. longum.

A succulent creeping glabrous herb, stems thick, fleshy, branched. Petioles stout, fleshy, reddish, up to 9 cm. long. Leaves glabrous, shining green above, pale below, alternate, triangular ovate acute, base truncate or shallowly cordate, edge crenate with small teeth in the notches, two glands close to the insertion of the petiole, nerves about 6 pairs, fine; up to 8 cm. long and 6 cm. broad. Flowers solitary, axillary, Pedicel pale green with reddish markings, 5.5 cm. long. Bract oblong acute 4–5 mm. long. Sepals 4, the two exterior ones ovate rotund, slightly inaequilateral, concave, with a short blunt process at the tip, 1.2 cm. long and 1 cm. broad, green; the two interior oblong, rounded at tip, green, 4 mm. long and about 1 mm. broad. Vexillum oblong, tip notched, lobes triangular acute, the sinus rather wide, about 2.3 cm. long and 1 cm. broad, slightly keeled, with a blunt green spur at the base, in colour orange yellow with reddish markings at the base exteriorly, paler with a few reddish markings at the base interiorly. Wings stipitate, 3.5–4 cm. long, distal lobes triangular acute falcate geniculate, basal lobe similar but smaller, orange yellow with reddish and purplish markings at the base. Labellum broadly infundibuliform, orange yellow with bold purple-red veinings inside, 4.2 cm. long, 2 cm. across the mouth, the mouth with a small mucro. Spur rather slender, upcurved, 1 cm. long. Filaments slender, linear, about 5 mm. long. Anthers connate in an oblong head about 3 mm. long. Ovary fusiform acute, 5 mm. long.

PAHANG; Gua Tipus, near Chegar Perah, growing in great profusion on limestone rocks, Henderson 19399 (type), October, 1927. Living plants were brought to the Botanic Gardens, Singapore, and flowered there.



Impatiens tipusensis, Hend.

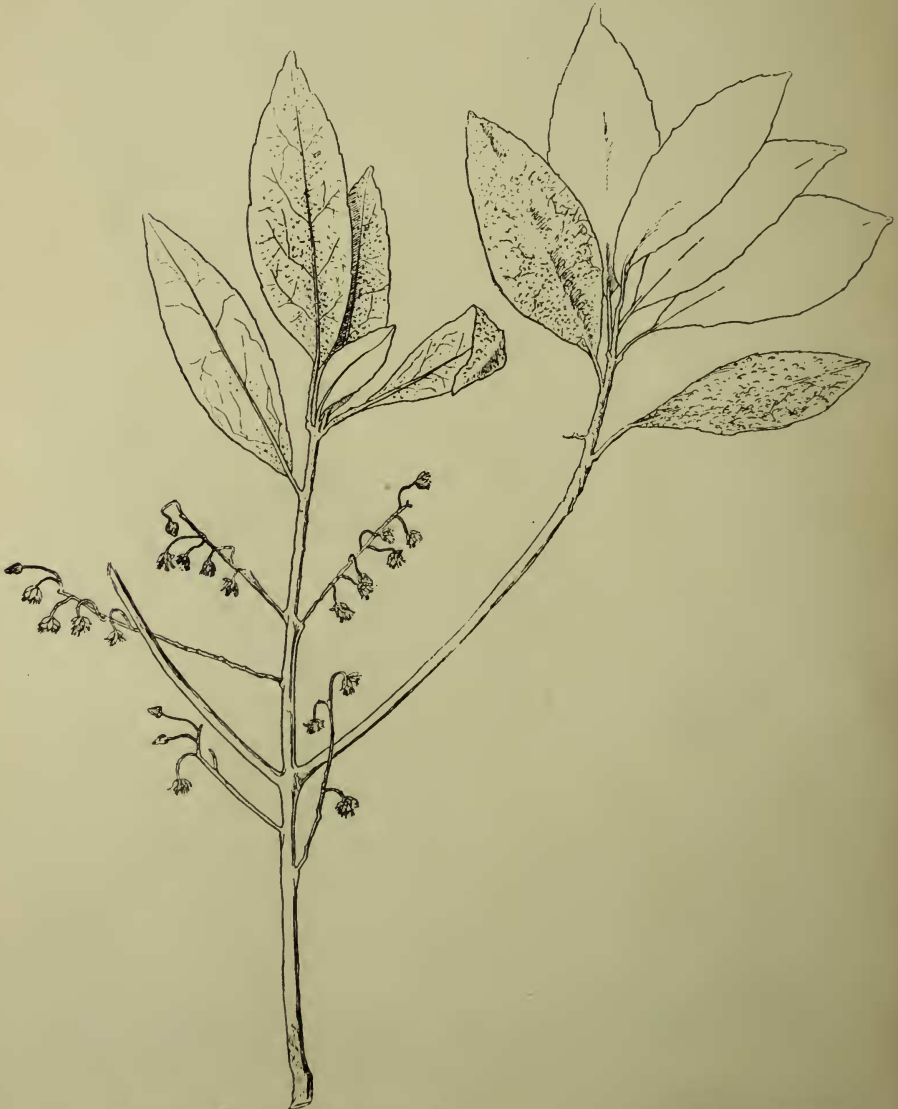
1. Vexillum. 2. Labellum. 3. Wings from front.

4. One wing spread out. All enlarged.

ELAEOCARPACEÆ.

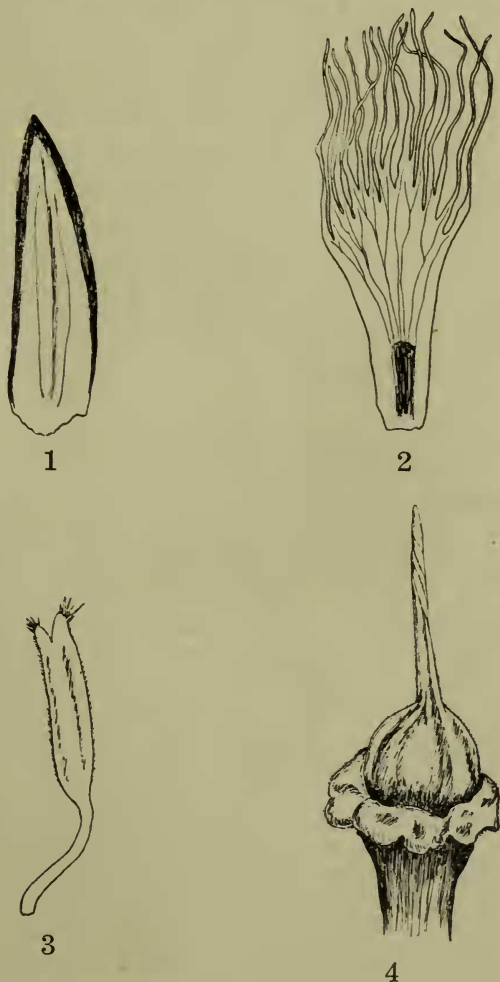
✓ *Elaeocarpus tahanensis*, *Henderson*, *sp. nov.*

Arbor parva, partibus junioribus, racemis, sepalis, exceptis glabra. Folia glabra, elliptico-lanceolata, anguste ovata, vel oblanceolata, apice et basi acuta, nervis utrinque 6, obscuris, ad 9 cm. longa, 3.5 cm. lata. Racemi e axillis defoliatis, ad 6 cm. longi, pedicellis circiter 1 cm. longis. Flori 5-meri, sepalis triangulo-lanceolatis, extus minute pubescentibus, 6 mm. longis, petalis obcuneatis, glabris, circiter 7 mm. longis, vix ad medium fissis, laciniis 14 vel 15; ovario 3-loculare.

*Elaeocarpus tahanensis*, *Hend.* x $\frac{1}{2}$.

Del. J. R. Charton.
Gardens Bulletin, S.S.

A small tree, glabrous except for the buds, inflorescence and sepals, branchlets reddish brown, stipules very caducous. Leaves glabrous, crowded towards the ends of the branches, elliptic lanceolate or narrowly ovate or oblanceolate, narrowed to the base, apex acute, thick and leathery when fresh, coriaceous when dry, margin thickened recurved, faintly crenate with minute black teeth, lower surface black dotted, up to 9 cms. long and 3.5 cms. broad. Nerves almost invisible when fresh, obscure when dry,



Elaeocarpus tahanensis, Hend.

1. Sepal x 7. 2. Petal x 8. 3. Stamen x 12.

4. Ovary, style and torus x 6.

about 6 pairs, interarching far from the edge. Petioles up to 1.7 cms. long, flattened above. Racemes from axils of fallen leaves, up to 6 cm. long, rachis minutely pubescent,

Pedicels nodding, about 1 cm. long, minutely pubescent, especially near apex. Sepals 5, minutely pubescent, especially near base, triangular lanceolate acute, base broad, edge thickened, midrib strongly marked, almost a keel, 6 mm. long. Petals 5, obcuneate, 7 mm. long with 14 or 15 narrow laciniae about 3 mm. long, glabrous, veins conspicuous, the base thickened. Stamens about 27, filaments about 1.5 mm. long. Anthers oblong quadrangular, about 2 mm. long, finely pubescent, divaricate at tip, one slightly longer than the other, both with a tuft of short bristles at their tips. Torus of 5 rounded deeply wrinkled pubescent lobes. Ovary ovoid conic, 3-celled, 6-ridged, densely pubescent. Style 4 mm. long, narrowly cylindric conic, pubescent below, glabrous above, grooved and twisted.

PAHANG, Gunong Tahan, 3500-4500 ft., Holttum 20630 (type), August 1928. A small tree in ridge forest, flowers white.

The young shoots, petioles, leaves, racemes, sepals and petals are covered with irregular white pustulations, caused by aggregations of crystals in the cells of the tissues. This is very evident in dried specimens, less so in leaves and flowers softened by boiling.

CUPULIFERÆ.

✓ *Pasania Macphailii*, Henderson, *sp. nov.*

P: encleisacarpae, Gamble affinis, fructu minore, foliis majoribus, apice acute acuminatis differt.

A stout spreading much branched tree of medium size, bark brownish grey, finely fissured longitudinally, transversely wrinkled. Branchlets smooth, furrowed, black or dark brown with a minute close grey mealy pubescence. Leaves elliptic oblong, rounded or slightly narrowed at the base, apex caudate acuminate, the acumen acute, both surfaces greyish white when dry, or the upper brownish, up to 22 cm. long and 9 cm. broad, midrib channelled above, elevate below, main nerves about 14 pairs, conspicuous below, curving along margin and looping near apex, rather faint above; transverse nervules and areolate reticulation visible on upper surface, transverse nervules fine but conspicuous below, reticulation not so evident. Petiole stout, 1 cm. long.

♀ spikes 20 cm. long, angled, grey-white pubescent. Flowers solitary on stout flattened upcurved pedicels, bracteoles 1-1.5 cm. long, lanceolate acute. Perianth lobes 6, about 0.5 mm. long, broadly triangular ovate blunt. Fruits conic, up to 2 cm. broad and as much high, the base



Pasania Macphailii, Hend. x 2/5.
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narrowed into the thickened pedicel. Cupule free from acorn, thin, smooth, pale grey brown, enclosing the whole acorn except the umbo, with 4 or 5 fairly distinct horizon-



Fruits of *Pasania Macphailii*, Hend. About natural size.

tal wavy rings, connected by very obscure vertical striae. Acorn covered with pale reddish brown silky pubescence. ♂ spikes unknown.

KELANTAN, banks of Sungai Ketch near Gua Ninik, Henderson 19621 (type), October 1927.

Named after Mr. M. M. Macphail of the F.M.S. Railway Construction Department, to whom I am indebted for much help and hospitality.

APOCYNACEÆ.

Kopsia alba, Ridl., MSS., *sp. nov.*

Frutex glaber, ramulis striatis. Folia brevi-petiolata, opposita, elliptica vel elliptico-obovata, apice caudato-acuminata, basi acuta, nervis lateralibus subtus prominentibus, margine arcuato-anastomosantibus. Cymae axilles vel terminales; bracteae ovato-oblongae. Calycis tubus brevis; lobi 5, late ovato-oblongi, obtusi. Corollae tubus 4.5 cm. longus, apice dilatatus; lobi ovati, albi.

A glabrous shrub 3-5 metres tall. Branchlets pale-brown, ridged. Leaves opposite, elliptic or elliptic-obovate, apex bluntly caudate acuminate, narrowed to the base, 8-18 cm. long, 3-7 cm. broad; main nerves up to 16 pairs, prominent beneath, meeting in a looped intra-marginal nerve close to the edge; reticulations distinct; petiole short, 3-4 mm. long. Cymes terminal or lateral, almost sessile, with one or two branches lengthening to 5 cm., densely covered with small ovate-oblong bracts ciliate on the edge. Calyx tube short, lobes 5, broadly ovate-oblong, blunt, ciliate on the edge, 2.5 mm. long. Corolla tube 4.5 cm. long, dilated near top, mouth of tube densely hairy; lobes ovate, 3-3.5 cm. long, pure white. Anthers lanceolate-acute, base rounded, filaments broad, long hairy. Carpels two, oblong-obtuse, hairy, 1 mm. long. Disc glands 1 mm. long, lanceolate, flattened.

P. TIOMAN, Ridley, s.n. August 1889; Ayer Surin, 800–1000 ft., common in rocky jungle where there is little undergrowth, Henderson 18948 (type).

KELANTAN, Kuala Krai, Haniff and Nur 10093, Jan. 1923; Sungai Keteh, Nur (with Dr. Foxworthy) 11992, Feb. 1924; base of the limestone cliff Gua Panjang at Gua Ninik, Henderson 19496, Oct. 1927.

This species was first collected by Ridley on Pulau Tioman in 1889 and recognised by him as new, but never described. It resembles *K. Ridleyana*, *King and Gamble*, but differs in being a much larger shrub with larger flowers, the corolla tube dilate near the apex instead of in the middle.

GESNERACEÆ.

Paraboea densifolia, *Hend.*, *comb. nov.* *Didymocarpus densifolia*, *Ridl. Journ. As. Soc. Str. Br.* 44, p. 51; *Flor. Mal. Pen.* II, p. 521. P. TIOMAN, Gunong Kajang c. 2000 ft., Henderson 18917. Hitherto known only from Gunong Janeng, Johore, and described by Ridley under *Didymocarpus* in the absence of corollas.

The following is a description of the corolla:—

Corolla campanulate, 1.5–1.7 cm. long, lobes broad, rounded. Filaments broad, short, anthers connivent. Ovary viscid hairy. Style long, stigma capitate, rather large.

ORCHIDACEÆ.

Oberonia tiomanensis, *Henderson, sp. nov.*

Herba epiphytica, acaulis. Folia falcata ad 3.5 cm. longa. Racemus ad 10 cm. longus, arcuato-flexuosus. Bractae inflorescentiae triangulo-ovatae, aristatae, 2 mm. longae. Flores 1.5 mm. latae. Sepala ovata, obtusa, concava, 0.6 mm. longa. Petala oblonga, acuta. Labellum trilobatum, 1 mm. longum, lobi laterales linearis, lobus medius oblongus, bifurcatus, divisionibus lanceolatis acutis. Capsula breviter pedicellata, oblonga, 3 mm. longa.

A small epiphytic tufted stemless plant. Leaves falcate, up to 3.5 cm. long. Spike up to 10 cm. long, flowers rather distant. Bracts triangular ovate aristate, 2 mm. long. Flowers 1.5 mm. across. Sepals ovate, blunt, concave, 0.6 mm. long. Petals oblong acute, shorter and narrower than the sepals. Lip 3-lobed, 1 mm. long, side lobes linear, midlobe oblong, deeply bifurcate, the divisions spreading, lanceolate acute. Column short, broad. Capsule shortly pedicelled, oblong, 3 mm. long.

P. TIOMAN, base of Gunong Kajang, c. 2000 ft., Henderson 18919 (type). Flowers and spike coral red.

Coelogyne tiomanensis, Henderson, sp. nov.

Pseudobulbus ovoideus, sulcatus, monophyllus, 3–4 cm. longus. Folium lanceolatum, acutum, 15–18 cm. longum. Petiolus 4–5 cm. longus. Racemus 6–8 cm. longus, biflorus. Bracteae lanceolatae, acutae, 1.5 cm. longae, deciduae. Sepalum dorsale oblongo-lanceolatum, acutum, carinatum, 4 cm. longum. Sepala lateralalia 3.5 cm. longa. Petala anguste linearia oblonga, circa 4 cm. longa. Labellum trilobatum, lobi laterales oblongo-semicordati, erecti, antice rotundati; lobus medius triangulo-ovatus, mucronatus, apice margineque reflexus; carinae duae. Gynostemium lobis lateralibus labelli aequilongum, cucullatum.

Pseudobulbs ovoid, strongly 4-ridged, 3–4 cm. long, leaf one. Raceme from the side of the pseudobulb in axil of leaf, 6–8 cm. long. Flowers two. Leaves lanceolate acute, 15–18 cm. long, petiole 4–5 cm. long. Bracts lanceolate acute, caducous, 1.5 cm. long. Upper sepal oblong lanceolate acute, keeled, 4 cms. long. Lateral sepals narrower, slightly falcate 3.5 cm. long. Petals narrow linear oblong, 4 cm. long, or nearly. Sidelobes of lip large erect oblong, semicordate, rounded, blunt; midlobe triangular-ovate, notched, mucronate, edges and tip recurved, 1.6 cm. long and broad. Keels two, strongly marked, undulate, extending half-way down midlobe and ending abruptly. Column as long as sidelobes of lip, the hood large, ovate blunt.

P. TIOMAN, summit of Gunong Kajang, 3383 ft., Henderson 18263; summit of Gunong Rokam, c. 3000 ft., Henderson 18397 (type). Live specimens were brought to Singapore and flowered in the Botanic Gardens.

The sepals are of a very pale flesh colour with yellow midrib; the petals greenish or pale flesh colour; the sidelobes of the lip white veined with brown; midlobe of the lip dark brown in the centre, the keels also dark brown shading to light brown at the edges; the column greenish with two faint brown streaks below; the hood reddish brown.

NOTES ON THE FLORA OF PULAU TIOMAN AND NEIGHBOURING ISLANDS.

BY M. R. HENDERSON, F.L.S.

Pulau Tioman and its neighbours have been but little explored from a botanical point of view. Up till the time of the writer's visit, collections had not been made above the thousand foot contour.